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An good - Practical

Inaugural Essay

On External Applications.

For the degree of Doctor of Medicine,

in the University of Pennsylvania.

By

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Philadelphia.

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The period of the first application of medicine to the external surface of the body, must have been very remote. The practice is probably to be ranked among the first attempts that were made in the early infancy of our science towards the removal of disease. At a time when chemistry had not yet disclosed to us the various preparations and combinations of medicines, and experience had not yet ascertained the effect or the dose of the active vegetables, medical prescriptions must necessarily have been confined to external applications. Accident may have first suggested their utility; for instance, the successful practice of applying carded cotton to superficial burns, was but lately discovered by the merest accident.
The relief afforded in febrile head-ache by the application of cold water, or of a cool green leaf; the alleviation of pain in other parts of the body by the application of blisters, warm

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fomentations, sinapisms, frictions &c must all have tended to the confirmation and continuance of the practice.

If we for a moment, direct our attention to the remedies of those people who have made but little or no improvement in the medical art, we shal find them to consist chiefly of such articles as relate to external applications.

In proportion however as the number of our medicines has increased by the wide spread investigations of chemistry, repeated experience, and accident, the manner of administering them, has also undergone a material change.

At the present day external applications instead of being limited to local affections, to certain parts of the body, or to certain stages of particular diseases, have acquired a more extensive confidence; and we are happy to learn that they are growing into favour more and more every day. The practice of applying remedies externally,

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is founded on cutaneous sympathy; or in other words, on the intimate connection of the skin or external surface of the body, with all the internal organs; and in fact with every part of the system. Let us now endeavour to prove this intimate connexion between the skin or external surface and the internal organs.

There are various incidents in life, and many familiar phenomena, both in health and disease, by which it is clearly illustrated. Every one must be familiar with the languor and debility, and the indescribable unpleasant feeling during a hot summers day; and on the contrary, observe the vivacity of spirits, and the lively activity of the body, on the return of a cool and refreshing evening. "On this connexion" observes a writer "depends that pleasing though indescribable sensation, which every one must have experienced from a change of linen and fresh garments."

"It is the extension of this connexion in a state of health

to the mental part of our frame which has long since made the colour of the countenance an index of the disposition; and while the blooming lively front has been considered as the attendant of a generous and open temper, the pale livid complexion has been received as the mark of one that is cold, selfish, and contracted."

There are a great variety of agents which display manifest morbifick effects upon the general system; such as, heat, cold, moisture &c each of which has its peculiar modifications. Let us first notice the effect of a change of climate from a cold to a warm temperature. The first effect manifested by a change of climate seems to be upon the skin & capillary circulation. Thus a person going from a temperate climate towards the tropics, (the West Indies for instance) has the action of his skin reduced considerably below that of the natives. Thus causing a relaxation of the surface, general debility of the system, torpidity of the

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cutaneous circulation, which more or less affect sympathetically the internal organs.
The profuse perspirations which are the effect of a hot climate, not only produce general debility, but seem to have some specifick action on the biliary secretion. The perspiratory and biliary vessels become gradually weakened by their inordinate and irregular action, from the effect of atmospherical heat, causing sometimes an increas'd and sometimes a diminished secretion of bile.
In either of these irregularities the bile is always more or less vitiated; and hence the great number of diarrhœas, and dysenteric complaints, which are the consequence of a hot and sultry climate.
The action of cold, upon the cutaneous organs also produces many sympathetic effects; and hence the numerous catarrhs, pleurisies, and rheumatick affections, which are the product

of cold. The inhabitants of a hot climate suffer less from cold, for a time, after being transported to a northern winter, than the native of it does. Hence we can readily account for a very curious phenomenon, that southern students in Philadelphia can withstand the intensely cold weather better than the natives or even persons from a more northern latitude; which was to me at first a very curious fact. The cold here acts as a stimulus upon the skin which was before unaccustomed to its action, and from the intimate connexion of this organ, with the rest of the body the whole system is invigorated. A residence of two or three winters would reduce the action of the skin to a par with that of the natives. The action of cold upon the general system does not seem to be confined to any particular organ or tissue; but the mucous membrane, seems to be most commonly effected by it.

Bichat in his general anatomy says. "If the skin and the mucous surfaces were always kept at the same degree of excitement by the constant uniformity of the stimuli, they would certainly be a much less fruitful source of disease." And as a proof of this assertion very properly directs our attention to the "foetus in utero which is hardly ever sick, because all the external causes which act upon its mucous and cutaneous sensibility do not vary untill birth." In another place he very correctly observes "that society has also multiplied to a great extent the injurious excitements to which the skin is subjected. These excitements consist especially in the rapid passage from heat to cold. In the natural state there is only the succession of the seasons; nature knows how to connect insensibly heat with cold, and to make the transition but rarely abrupt. But in society the artificial degrees of temper-

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ature of our apartments, degrees differing at first from that of the atmosphere, then varying greatly from each other, so that the same man who in winter enters thirty apartments is often subjected to thirty different temperatures." And I may add with tolerable safety, to thirty chances of contracting a disease.
The action of cold upon the cutaneous organ produces many sympathetic effects, especially if subjected to its action while we are sweating, thus diverting the course of the fluids from the surface towards the internal organs, causing sometimes either a colliquative diarrhoea, or at other times an engorgement of the internal vessels, which suddenly produces inflammation.
The skin exercises sympathetically great influence over the mucous system; for the one is a mere continuation of the other. Who does not know that the production of most catarrhs is often the sudden consequence of the action of cold on

the cutaneous organs? A slight departure from the usual quantity of dress or bed-covering will often occasion a catarrh or a pleurisy.
So intimate, in fact, is this connexion that an unusual, though apparantly a very innocent impression, will produce sometimes a very alarming disease.
The serous membranes are also in a great degree subservient to the sympathetic influence of the skin, for instance, a pleurisy is caused by the direct action of cold on the system, the blood is driven from the external surface towards the internal organs, and the vessels of the pleura, instead of retaining their natural fluid, (the serum) are compelled to admit the red blood which is an unnatural stimulus, and thus inflammation supervenes.
What effect has moisture, on the system in producing disease? The dangerous consequences of damp clothes, or sleeping in damp beds, or rooms,

are almost too obvious to need a remark. The numerous catarrhs which can always be traced to moisture applied in some way or other to the body, will sufficiently warrant us in asserting that it is a very frequent source of disease. There are some particular parts of the body which here deserve to be more closely noticed; for they are more frequently the inlet of disease than any others. The feet appear to suit this character in preference to all others. In fact, so frequent, and so certain is this assertion verified, that wet feet and a bad cold amongst the vulgar are synonymous terms. In females, the feet seem to exercise a very direct and immediate influence over the organic functions of the uterus. And, unfortunately for them and for us too, they are too well aware of this immediate connexion; for it is not unfrequently resorted to by them designedly. In substantiation of what I say, I here beg leave to repeat a few

lines from Dr Dewees's truly excellent work, which are happily appropriate to our subject. "However well established the menstrual dicharge may be, it is liable from a variety of causes independently of pregnancy and suckling, to be interrupted. The little regard which young females pay to this period, exposes them but too frequently to a derangement of it; nay, some we have known, so heedless of consequences as to designedly interrupt them by putting their feet in cold water, when engaged for a party of pleasure."

Having thus seen some of the connexions between various parts of the body, and the wide avenue which the skin presents as an inlet to the general system, of various and numerous diseases; may we not reason, "a priori", that nature has established these connexions rather for the purpose of preventing and curing, than for the accepion of diseases. Do not all the circumstances above mentioned

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clearly demonstrate the utility and the absolute necessity of applying remedies externally? There are various instances which clearly tend to substantiate our position; some of which it may not be unimportant for us to mention.

The celebrated Darwin relates an instance of two dysenteric patients in the same ward of an infirmary in Edinburgh, who quarrelled, and resolved to settle their dispute by severely horsewhipping each other, which they did for a considerable time; both of them were better afterwards. This is not a very desirable remedy, but, however, it serves to answer our present purpose. If the skin had been excited by any other stimulus, than the whip, the effect perhaps would have been the same.

Bichat mentions a case of a woman at the Hotel Dieu in Paris, who was seized with excessive and continual vomiting from a sudden suppression of her catamenia, almost every

remedy had been resorted to without effect; finally he ordered the patient to be put in a warm bath, every thing was calmed the moment she came out of it.

Among the principle external applications in use at the present day, are blisters, sinapisms, the cold and warm bath, fomentations, &c., some of which only we shall particularly notice. Blisters do certainly deserve to be ranked among the most valuable and efficacious remedies, that are in the hands of the physician. They also merit a confidence, which does not belong to other remedies, for they are always prompt and uniform in their action, and hence are never fallacious. They, as we hinted above, must be of ancient origin, and the prompt and decided benefit afforded by their application has ever since tended to the confirmation and continuance of their use.

Blisters like other important remedies have

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had their adversaries and their day of trial, but experience and continued perseverance in their use, have entitled them to their present undeniable confidence. Another important trait in their remedial character is that they are applicable to a greater number of dissimilar diseases than any other single remedy in the whole Materia Medica.

The modus operandi of blisters has been a subject of much speculation even among the highest authority; each one adducing his own theory, and supporting it by very weighty and imposing arguments. The venerable Cullen seems to attribute their beneficial influence to the power of relaxing the spasm of the extreme vessels, determining to the surface and producing an effusion there, which also relaxes the spasm of the deeper seated vessels. Others appear to ascribe the good effects of blisters to their direct depletory or evacuating influence, and affirm

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that a blistered surface may be considered in the light of a new excretory organ. Some again have endeavoured to explain their operation by ascribing it to the establishment of a new action, in the part. Each of these suppositions in combination with the sympathy of the external surface and the internal organs, especially the stomach, (which connexion we endeavoured to establish in the first part of our essay) will perhaps afford a partial explanation of the modus operandi of blisters. Be this as it may, what ever may have been their origin, or by whatever people they may have been first employed; their utility sanctioned by the practice of ages, is not less confirmed by the test of daily experience.

The practical application of blisters as well as other remedies in the healing art, is conformable to certain general and particular rules.

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inflammatory diseases, until the system has been prepared for their use. Thus, an author very justly remarks "that blisters cannot be applied, with advantage, nor even with safety at any period of continued fevers. If they are applied during an early period when the morbid action is highly inflammatory, they cannot fail to do mischief. They simply add the amount of their own stimulation to that under which the system is already labouring, and by that means, augment the force of febrile action. In inflammatory fevers the lancet should have nearly completed its duty, before blisters are called to theirs."
In some particular cases where there is inflammation or congestion of some important vital organ, attended with danger, blisters may prove of essential service in the beginning of disease, if accompanied with copious venesection, and other antiphlogistic measures.

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Blisters have been not a little extolled in intermittents. Dr Chapman speaks highly in favour of them. In his Therapeutics he says, "he has seen them, in more than one instance successfully applied as a preventative of the paroxysm, when so managed as that the full impression should be felt at the anticipated moment of attack. Even where the effect is not so striking or immediate, they are not without utility. The irritation which they induce being constantly kept up on the extremeties will after a time so interrupt the trains of morbid associations constituting this form of fever, as frequently to put an end to the worst cases of it. Nor are they less demanded in those cases of the disease attended by visceral congestion, or induration of a painful and inflammatory nature. Little indeed will tonics avail till such obstructions are removed, and with this view a succession of blisters over the affected part ought never to be neglected".

Blisters are highly useful in all the inflammatory affections of the alimentary canal, but it must be acknowledged, that unlesſ they are well timed as to the period of the disease, they are not only useleſ, but evidently injurious. In cases attended with symptoms of a particular affection of any of the important internal organs, in acute pulmonic affections for instance, blisters are sometimes earlier resorted to, than in inflammations of other organs. There appears to be a diversity of opinion on this subject. It is contended by some, that they do more mischief than good, when resorted to before the action of the heart and arteries has been considerably reduced; while others allege, that they may be advantageously applied, in the very commencement of the disease. There can be no doubt, however, but that the safest and most decided benefit would result from their application after arterial excitement had been reduced by depleting

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measures. In relation to this point Dr Armstrong says. "It has struck me sometimes very forcibly, that the precipitate application of blisters to the chest, before general or local blood-letting is a prejudicial practice; at least I have seen hydrothorax rapidly follow it, from the increase of the general and topical excitement which blisters thus applied had apparently produced."
In gastritis, and enteritis, blisters when well timed are entitled to much confidence. They appear to posess the power in preference to any other remedy of eradicating the remains of inflammation, by producing a counter irritation on the surface, and thus inviting the circulation and the train of morbid associations to that part. Blisters are much used in phrenitis and in all the affections of the brain partaking in any degree of inflammation or congestion. In cases where there is a disposition to the

typhoid state, or where there are symptoms of delirium, blisters are undoubtedly beneficial. In rheumatism they have gained much celebrity, and in fact they are sometimes the only means of curing that intractable disease. A case of this kind occurred in the Hospital last summer, of a patient affected with chronic rheumatism upon whom, in vain, had been exhausted all the usual resources in this disease. The case was cured by the application of blisters alternately to the effected limbs.

Blisters are generally supposed to be stimulant in their nature, they also, however, deserve to be associated with the antiphlogistic remedies and hence are applicable to all diseases of an inflammatory character. Some practitioners have objected to them in cases of nephritis, on account of the tendency which cantharides possess of irritating the urinary organs, and consequently of increasing the inflammation of the affected parts. But on the contrary,

Dr Chapman informs us from his own experience that this notion does not savour so much of absolute truth, as they would make us believe. Hence we may readily conclude that they are primary remedies in all internal inflammatory affections. In cases where the skin assumes an unnatural increase of temperature, and extreme dryness (a circumstance which always deserves particular attention, on account of its close connexion with the general system, which we pointed out in our introduction,) the application of a blister has frequently been known to produce a slight diaphoresis and in a short time the skin, to assume its natural temperature and moisture.

As antispasmodics also blisters are entitled to some degree of confidence. In cases of inordinate irritability of the stomach producing spasmodic contractions, extreme nausea, and violent vomiting, when other remedies have failed, the application

of a blister will prove "cordial and exhilarating!"
Some particular species of hemorrhagy especially epistaxis, when all the usual remedies and common modes of treatment have proved futile, will in a very short time succumb to the influence of a blister.
The last though not least invaluable importance attached to the practical application of blisters, which I shall mention, is that of arresting the progress of gangrene. The profession is not a little indebted to the author of this as well as numerous other discoveries, and inventions, in the healing art. But our debt of gratitude does not stop here. Let us enquire with whom also originated the practice of applying a blister along the tract of an inflamed vein.
Some contrariety of opinion, no doubt, exists as to the locality of blisters, in the various diseases to which they are applied. This is to be regulated according to circumstances, and the caprice of the

practitioner or patient. Suffice it for us to remark as a general rule, that in all local affections blisters should be applied as near the seat of the disease as possible. But when an impression is to be made on the general system, the extremities are to be prefered, for reasons pointed out above. In very advanced stages of disease they should be applied nearer the centre of circulation. On account of the diminished sensibility of the extremities and the feblenes of vital energy, the impression will proportionably be diminished.

The use of blisters is sometimes supplanted by the application of sinapisms. The latter although not so extensive in their application, still deserve to be ranked among our most important remedies in the treatment of some particular diseases. Their mode of action is perhaps the same as that of blisters. And the benefit resulting from their use is obtained upon the same principle;

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that is, revulsion and counter irritation.
Sinapisms are chiefly resorted to in cases of emergency, and sometimes only for a temporary benefit. Their full effect may be displayed upon the system in a few minutes whereas blisters generally require several hours. Sinapisms are more stimulating in their nature than blisters, occasion more pain for a time, but are not attended with such ill consequences.
Sinapisms are well adapted to acute inflammations of any of the abdominal viscera. In cases of emergency when the lancet, if necessary, has failed to procure relief a sinapism over the affected part will frequently have the desired effect. They seem to be suited to diseases of a periodical occurrence, and most particularly to intermittent fever. Sinapisms to the extremities or abdomen, or both, a short time before the expected paroxysm, will frequently subvert the disease. When there is considerable inflam-

mation of the brain attended with delirium, and other alarming symptoms, and where no time is to be lost, sinapisms to the lower extremities, will be attended with happy results.

We here beg leave to quote the following sentence from Dr Daniel of Savannah.

"To a physician unaccustomed to the influence of sinapisms in the treatment of our autumnal fevers, the remark will appear almost incredible, that they frequently in a few hours relieve a patient from the most distressing restlessness: and whilst yet on him produce sound and refreshing sleep."

Having thus concluded this imperfect essay, I sincerely hope to have a critics' kind indulgence